

California Department of
Forestry and Fire Protection
Siskiyou Unit
Fire Management Plan
2005



Education
Engineering
Enforcement
Prefire Planning
Fire Safe Council

Siskiyou Unit
Fire Management Plan
2005

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Siskiyou Unit Fire Management Plan 2005



Siskiyou Unit Fire Prevention Bureau

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1. Executive Summary

Unit Overview

The Siskiyou Unit (SKU) is comprised of Siskiyou County and encompasses 1.2 million acres of ecologically diverse wildland ranging from high desert in the east, to the magnificent coniferous forests of the Klamath River drainage with lush farmland carpeting the interior valleys, and 14,000' Mt. Shasta as the geographical centerpiece. The County is drained by the Sacramento River in the south, the Klamath River in the north and the Salmon River in the west.

The County's weather patterns are as diverse as its ecology. Summer temperatures may climb into the 100's while winter temperatures may drop to well below freezing with significant snowstorms common throughout the winter months. Fuel types in the Unit include timber, timber with grass under story, grass, brush, oak woodland and desert sage and juniper stands. Like most mountainous areas, Siskiyou County may experience a high occurrence of lightning activity during the summer months. Ranching, recreation and the timber industry fuel Siskiyou County's economy. The summer months see a large influx of tourists who take advantage of the County's wide-open spaces for outdoor recreation including hunting, fishing, white-water rafting, mountain climbing and camping.

SKU has primary responsibility for just over 1.2 million acres of CDF Direct Protection Area. The County contains portions of 6 National Forests. The Interagency Command Center staffed by CDF and USFS assumes dispatch responsibility for 28 local fire departments and 7 ambulance companies responding to incidents over a vast geographic area.

The Siskiyou Unit manages 7 fire stations, and 1 conservation camp. During fire season, 13 Schedule "B" engines and 2 dozers are staffed. The county provides funding under the Amador plan for 3 stations to remain open year-round.

Status of the Assessments

The Four assessments addressed in the Fire Plan process are:

1. Level of Service
2. Severe Weather
3. Hazardous Fuels
4. Assets at Risk

The initial validation of raw data related to these assessments has taken several years to complete, and methodologies continue to be refined by the Pre-Fire Engineers and Sacramento support staff. The **level of service assessment** for the Unit is complete. The initial **hazardous fuels assessment** is complete. The **severe weather assessment** methodology is currently being addressed at the Sacramento Fire Plan level to refine the data acquisition process, but the current map used to display severe weather zones in the Unit is acceptable. The **assets at risk ranking** has been completed. This year the Unit has combined the four assessments and established a high-risk/ high-value, countywide ranking. The ranking achieved through the assessments is in agreement with historically targeted areas.

Intent of the Plan

The intent of the Unit Fire Management Plan is to create and maintain a meaningful script for addressing the wildfire problem in Siskiyou County. In line with the stated goals of the California Fire Plan, and the mission of the Department, life and property are the highest priorities. Stakeholder input coupled with sound data and local fire suppression experience, should pave the way for a dynamic and enduring document to guide our community.

2. Fire Management Planning Process

California Fire Plan

The California Department of Forestry and Fire Protection (CDFFP) has initiated a pre-fire management initiative to reduce wildland fires and the associated costs of suppressing these fires. This initiative includes a systematic application of risk assessment, fire safety, fire prevention and fire hazard reduction techniques. The goal of the initiative is to identify those areas within the state responsibility areas that are high-priority areas in terms of assets at risk, and with a high probability of large wildfires with associated costs and losses. The end product of this initiative is the California Fire Plan, and it's local component, The Siskiyou Unit Fire Management Plan.

Goals and Objectives

The overall goal of the California Fire Plan is to reduce total costs and losses from wildland fire by protecting assets at risk through focused pre-fire management prescriptions and increased initial attack success.

The California Fire Plan has five strategic objectives.

- To create wildfire protection zones that reduce the risks to citizens and firefighters.
- To assess all wildlands, not just the state responsibility areas. Analysis will include all wildland fire service providers, federal, state, local government, and private. The analysis will identify high-risk/high-value areas, and develop information on and determine who is responsible, who is responding, and who is paying for fire emergencies.
- To identify and analyze key policy issues and develop recommendations for changes in public policy. Analysis will include alternatives to reduce total costs and losses by increasing fire protection system effectiveness.
- To have strong fiscal policy, focus and monitor the wildland fire protection system in fiscal terms. This will include all public and private expenditures and economic losses.
- To translate the analyses into public policies.

California Fire Plan Framework

There are five major components that form the framework of an ongoing fire planning process to monitor and assess California's wildland fire environment

- Creation of wildfire protection zones that reduce the risks to citizens and firefighters.
- Initial Attack Success...The fire plan defines an assessment of the protection system for wildland fire. This measure can be used to assess the Department's ability to provide an equal level of protection to lands of similar type. This measurement is the percentage of fires that are successfully controlled before unacceptable costs are incurred.
- Assets protected...The Plan establishes a methodology for defining assets protected and their degree of risk from wildfire. The assets addressed in the plan are: citizen and firefighter safety, watersheds and water, timber, wildlife and wildlife habitat, (including rare and endangered species) unique areas (scenic, cultural and historic) recreation, range, structures and air quality.
- Pre-fire management... this aspect focuses on system analysis methods to protect assets from unacceptable risk of wildland fire damage. Projects include a combination of fuels reduction, ignition management, fire safe engineering activities, and forest health to protect public and private assets. The priority for projects will be based on asset owners and other stakeholders' input and support. Pre-fire management prescriptions designed to protect these assets will also identify who benefits and who should share in the project costs.
- Fiscal framework...the Board of Forestry and CDFFP are developing a fiscal framework for assessing and monitoring annual and long term changes in California's wildland fire protection systems. State, local and federal wildland agencies along with the private sector have evolved into an interdependent system of pre-fire management and suppression forces. As a result, changes to budgeted levels of service of any of the entities directly affect the others and the service delivered to the public.

The Local Plan

The Siskiyou Unit Fire Management Plan is a dynamic, working plan that provides for an ongoing assessment of the fire situation in the unit. The document includes stakeholder contributions and priorities. The plan identifies targets for pre-fire management as defined by those who live and work with the local fire problem.

Utilizing computer based scientific data and Geographic Information Systems, the Siskiyou Fire Plan systematically assesses the existing Level of Service, identifies the high-risk, high value areas for potential large damaging fires, ranks those areas, and suggests pre-fire engineering solutions to lower costs and losses from wildfire.

To accomplish this assessment, the Unit follows the processes outlined in the California Fire Plan. The assessment has four components that will be discussed in detail later in this document.

- Level of Service (Ignition workload)
- Assets at Risk
- Hazardous Fuels
- Severe Fire Weather

The information from these assessments is used to create Unit maps that help identify high-risk/high-value areas where large, damaging fires are most likely to occur. The GIS information is validated by field personnel and then analyzed by the Unit's senior management staff with input from the Field Battalion Chiefs, Fire Prevention Battalion Chief, and the Pre-Fire Engineer. The assumption used in developing the pre-fire management Unit plan is that pre-fire projects will reduce the costs and losses during periods of severe fire weather, which is when most of California's wildfire costs and losses occur.

3. Stakeholders

Who are they?

Stakeholders are defined as national, state, local, private agencies, or interest groups, with assets at risk from wildfire. Stakeholders are identified locally for each asset. The primary stakeholders are Federal, State and local fire agencies, large timber landholders including the USFS and those interested parties brought together by the local Fire Safe Councils. There are 12 Fire Safe Councils in the county. They have been instrumental in providing a forum for many different community voices and organizing their concerns into a positive chorus. They remain invaluable in their ability to focus awareness and expose local concerns. There are a number of projects in various stages of development throughout the county that were initiated by the Fire Safe Councils. Siskiyou Unit continues to support these projects through staffing, equipment and informational resources.

In addition to the efforts of CDF, the Klamath National Forest and the Shasta-Trinity National Forest have been working closely with communities throughout the county to overcome some of the hurdles involved with receiving grants. Many of the Fire Safe Councils have received Federal grant monies for fuel reduction projects. Many local communities have been included on the National Communities at Risk listing which helps their eligibility for funding. This list can be found on the California Fire Alliance web site at: http://www.cafirealliance.org/communities_at_risk.php.

The following page is a list of contacts for the local Fire Safe Councils.

A list of stakeholders for each Battalion is listed in each Battalion Management Plan.

SISKIYOU COUNTY FIRE SAFE COUNCILS

COUNCIL NAME	FACILITATOR	PHONE/ EMAIL
Copco-Bogus FSC	Linda Oliver	459-5623 oranchmama@aol.com
Fire Safe Council of Siskiyou County	Dale and Giselle Nova	926-5071
French Creek	Richard Van de Water 9516 Azalea Drive Etna, CA 96027	468-5488 rvandewater@fs.fed.us
Greater Weed Area FSC	Kelly Conner 2738 Nighthawk Lane Weed, CA 96094	938-2886 Kelly@snowcrest.net
Happy Camp FSC	George Harper Box 990 Happy Camp, Ca 96039	493-2990
Klamath River FSC	Stephen Fisher 19003 Hwy 96 Yreka, CA 96097	496-3453
Lake Shastina FSC	Dodi Dickson Everhart Drive Weed, CA 96094	938-1283 dbirdie@finestplanet. com
Lower Scott River Road FSC	Doug Striplin 607 Indian Creek Road Fort Jones, CA 96032	468-5661 waterdrumm@sisqtel. net
McCloud FSC	Ron Berryman	964-2103 berryman@jps.net
Mt. Shasta Area FSC	Dale or Giselle Nova 206 Shasta Ave. Mt. Shasta City, CA 96067	926-5071 msts@snowcrest.net
Orleans/Somes FSC	Will Harling Box 840 Somes Bar, CA 95568	4469-3216 dendritic@yahoo.com
Salmon River FSC	Jim Villapontaux P.O. Box 1089 Sawyers Bar, CA 96027	462-4655 jvptx@srrc.org
Seiad Valley FSC	Debbie Meyer P.O. Box 504 Seiad Valley, CA 96086	496-3164 jpm@sisqtel.net

4. The Assessment Process for Assets at Risk

The goal of the Siskiyou Fire Plan is to protect the wide range of public and private assets in the County from the damaging affects of wildfire. The assets addressed in the plan are

- citizen and firefighter safety
- watersheds and water
- timber
- wildlife and habitat
- rural communities
- unique areas (scenic, cultural and historic),
- recreation
- range
- structures
- air quality

There are 13 individual components identified as raw data for the above assets.

Though there is currently no method for validation and correction of raw data pertaining to assets at risk, the unit recognizes that much of the raw data is valuable, particularly the housing and timber layers. Ongoing studies continue to try to define a practical methodology for submitting corrections to the data layers.

To identify high-value areas of assets at risk, Unit staff conducted meetings both internal and external. The 13 assets were ranked according to "local" importance, or what the perceived value is to those who live in the County. Housing, Timber and Infrastructure were ranked highest. Maps of these asset locations were evaluated to determine the areas of highest combined asset value. The areas identified were in agreement with historically targeted areas.

The process of identifying assets at risk also helps to identify who benefits from those assets. It is a premise of the California Fire Plan, (on which the local plan is structured), that those who benefit from the protection of an asset should pay for that protection. Fire protection resources are limited, primarily by budget constraints. Therefore, these resources should be allocated based on the magnitude of the assets. The assets are ranked high, medium and low as to their susceptibility to wildfire.

(For more information regarding the evaluation of asset susceptibility, refer to the California Fire Plan)

<http://www.fire.ca.gov/FireEmergencyResponse/FirePlan/Fireplan.asp>

5. General Description of the Fire Problem

<u>Asset at Risk</u>	<u>Public Issue Category</u>	<u>Location and ranking methodology</u>
Hydroelectric power	Public welfare	1) Watersheds that feed run of the river power plants, ranked based on plant capacity; 2) cells adjacent to reservoir based plants (Low rank); and 3) cells containing canals and flumes (High rank)
Fire-flood watersheds	Public safety Public welfare	Watersheds with a history of problems or proper conditions for future problems (South Coastal Plain, field/stakeholder input), ranked based on affected downstream population
Soil erosion	Environment	Watersheds ranked based on erosion potential
Water storage	Public welfare	Watershed area up to 20 miles upstream from water storage facility, ranked based on water value and dead storage capacity of facility
Water supply	Public health	1) Watershed area up to 20 miles upstream from water supply facility (High rank); 2) grid cells containing domestic water diversions, ranked based on number of connections; and 3) cells containing ditches that contribute to the water supply system (High rank)
Scenic	Public welfare	Four mile viewshed around Scenic Highways and 1/4 mile viewshed around Wild and Scenic Rivers, ranked based on potential impacts to vegetation types (tree versus non-tree types)
Timber	Public welfare	Timberlands ranked based on value/susceptibility to damage
Range	Public welfare	Rangelands ranked based on potential replacement feed cost by region/owner/vegetation type
Air quality	Public health Environment Public welfare	Potential damages to health, materials, vegetation, and visibility; ranking based on vegetation type and air basin
Historic* buildings	Public welfare	Historic buildings ranked based on fire susceptibility (no data for this asset)
Recreation	Public welfare	Unique recreation areas or areas with potential damage to facilities, ranked based on fire susceptibility
Structures	Public safety Public welfare	Ranking based on housing density and fire susceptibility
Non-game wildlife*	Environment Public welfare	Critical habitats and species locations based on input from California Department of Fish and Game and other stakeholders (no data for this asset)
Game wildlife	Public welfare Environment	Critical habitats and species locations based on input from California Department of Fish and Game and other stakeholders
Infrastructure	Public safety Public welfare	Infrastructure for delivery of emergency and other critical services (e.g. repeater sites, transmission lines)
Ecosystem Health*	Environment	Ranking based vegetation type/fuel characteristics (No methodology for this asset)

The Assessment Process for Level of Service, Hazardous Fuels and Severe Weather

A system of scaling was designed to break down the vast geographic areas to be assessed statewide. The analysis was linked to a common map source; USGS 7.5 minute quads. These maps were then divided into a 9X9 grid, resulting in 81 cells, referred to as “Quad 81st”. Each cell is approximately 450 acres in size. Evaluation criteria are applied to each area and numerical rankings are entered for each Q81st, resulting in priority rankings for Level of Service, Assets at Risk, Hazardous Fuels and Severe Fire Weather. These four assessments are then used to analyze the local fire problem, identify the high-risk/high-value areas and assist in suggesting pre-fire management solutions.

The high-value assessment, **Assets at Risk**, was detailed in the previous section. Following are detailed descriptions of the three high-risk assessments:

A. Level of Service assessment focuses on identifying areas with the potential of unacceptable loss and high-cost fires due to fire frequency and inadequate staffing levels.

B. Fuel Hazard assessment evaluates current flammability of a particular fuel type, given location on the slope, average bad weather conditions, ladder fuels, and crown density.

C. Severe Weather assessment determines the number of days during declared fire season that geographic areas within the county experience severe fire weather.

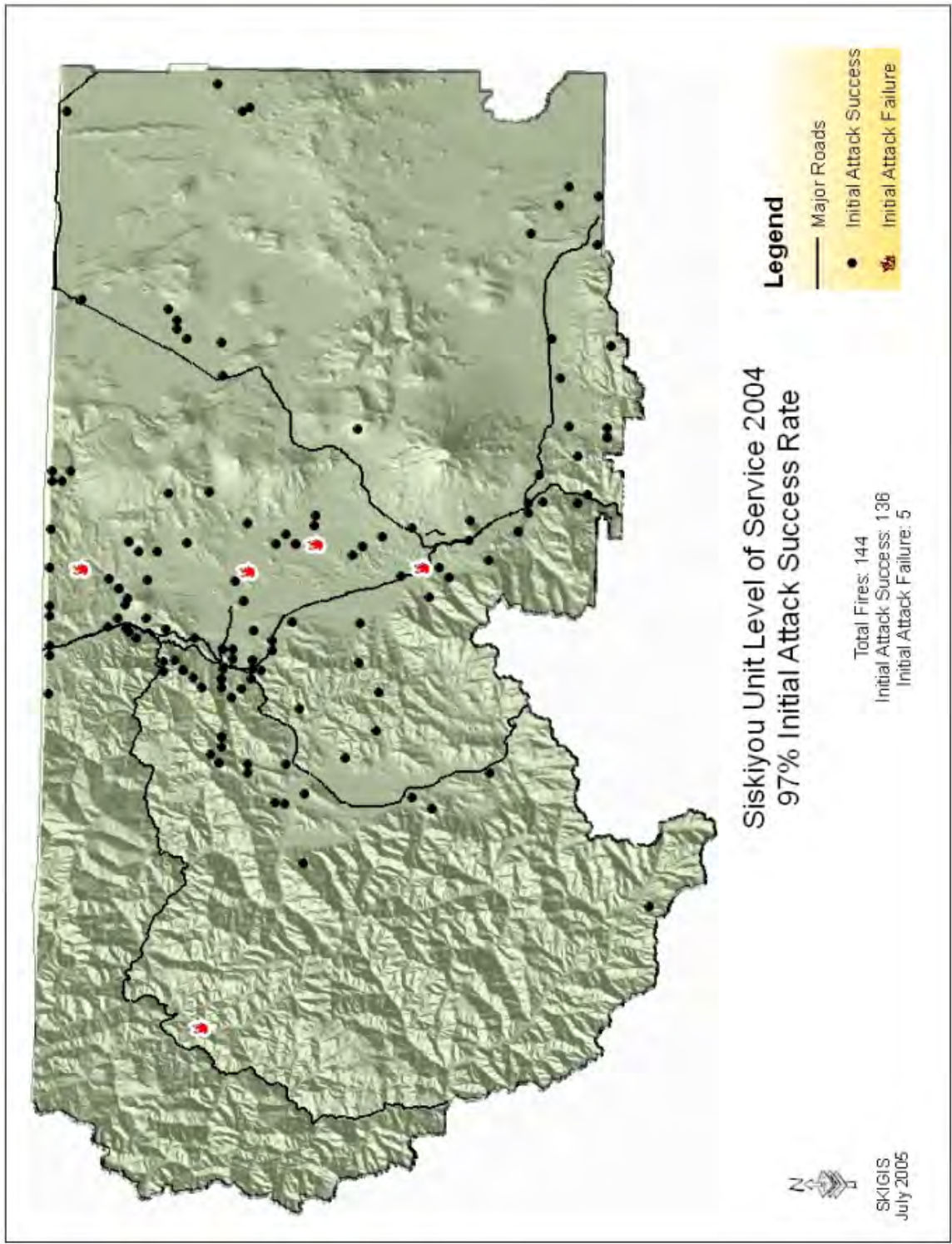
A. *Level of Service Assessment*

The Level of Service assessment focuses on identifying areas with the potential of unacceptable loss and high-cost fires due to fire frequency and inadequate staffing levels.

Tasked by the legislature through Public Resources Code 4130 to provide an equal level of protection to lands of similar type, CDF recognizes the need for a process to define a level of service. It is difficult to draw a true performance based picture, given the complexity of the fire environment. The current level of service rating has been established using GIS data, a 10-year history of fires, the assets damaged and severity of burning. The rating is expressed as a ratio comparing successful efforts to total fire starts. “Success”, is defined as those fires controlled without additional resources beyond initial attack. Also factored into the success rating is the amount of damage, cost to control, and final fire size by fuel type. It is important to note, some fires, fought in severe weather conditions, can be termed successful though the final acreage exceeds the cut-off minimums. This emphasizes the idea of Level of Service as an approximation and points up its value as a tool for analysis, rather than an absolute.

In the 10 year analysis of ignitions it was found that Siskiyou enjoys a 98% overall success rate. Study of those 450 acre areas containing more than 10 starts during the period analyzed, supported a known escape debris burn problem in one community and a railroad cause problem in another, which has been mitigated. The remaining high incidence areas contained fires that were lightning caused.

The initial attack workload assessment is displayed on the following maps with statistical data related to these maps. Initial attack points of origin are plotted and color-coded based on success-failure scores. Some of the successes and failures are not matched to weather. Further validations will need to be refined and completed to make these matches in the future.



B. Fuel Hazard Assessment

Fire Fuels

The fuel assessment layer exemplifies the local fire hazard situation. This assessment is a very useful tool, allowing pre-fire planners and fire safe councils to target critical areas for pre-fire fuel treatment.

The fuel hazard assessment evaluates current flammability of a particular fuel type, using: location on the slope, average bad weather conditions, ladder fuels, and crown density. Fuel, in the context of wildland fire, refers to all combustible material available to burn within a given area of land. Grass, brush and timber are the most common fuels found in the greater Siskiyou County ecosystem. Each fuel has its own burning characteristics based on several inherent factors. These factors include moisture content, volume, live to dead vegetation ratio, size, arrangement and the plant's genetic make up. All of these contribute to a fire's spread, its intensity, and ultimately, its threat to assets. Fuel loading is measured in tons per acre. Grass is considered a light fuel with approximately $\frac{3}{4}$ of a ton per acre. On the other end of the spectrum, thick brush, a heavy fuel, can have a volume of over 21 tons per acre. Fire intensity is also directly related to fuel loading. Grass burns rapidly with a short period of intense, maximum heat output. Brush, on the other hand, has a long sustained high heat output making it more difficult to control. With this in mind it is prudent to identify areas containing heavy concentrations of fuel and target these areas for hazard reduction.

Fuel arrangement is critical in wildland fire behavior, as it is linked to how readily the fuel burns and hence a fire's spread. Non-compacted fine fuels, such as grass, spread fire rapidly since more of its surface can be heated at one time. Compacted fuels, such as pine litter, on the other hand burn slower because heat and air only reaches the top of the fuel.

Vertical arrangement refers to the continuity of fuel from the forest floor to the tree canopy. The vertical arrangement of fuels is known as ladder fuels; they are an extremely influential factor in fire spread and behavior often turning a ground fire into a crown fire.

Crown or canopy closure refers to the density of a forest created by treetops, and is very important in the lateral progression of fire through the forest canopy.

Hazardous Fuels Assessment

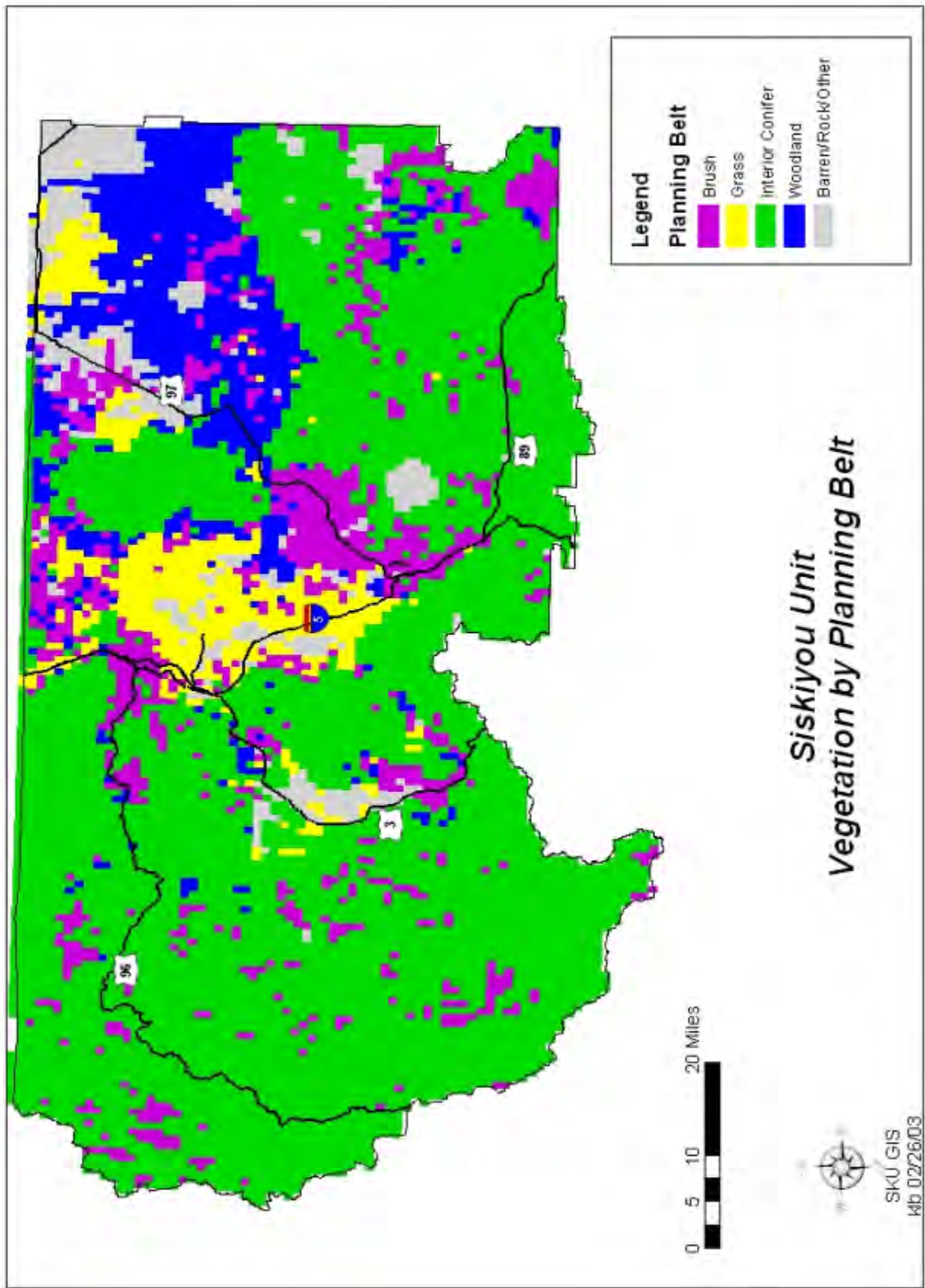
The first step in defining hazardous fuels is the development of a vegetation coverage layer for Siskiyou Unit using GIS. Planning belts have been established to classify the 13 fuel types into four general areas: grass, brush, timber, and woodland. These areas have similar fire behavior characteristics that impact fire suppression activities. The vegetation within the planning belts is then categorized into the fuel model coverage as described in the National Wildfire Coordinating Group Fuel Models detailed in the appendix. After the vegetation coverage was completed, Arcview GIS was used to display the vegetation coverage overlaid with the unit's fire history. Through analysis, the impact on surface fuel characteristics as a result of past fires was factored into the creation of a final vegetation layer. The final product is a more accurate account of the current "post fire" vegetation coverage throughout the unit.

The final phase of determining fuel hazard ratings for the Siskiyou Unit involves the combining of crown fuel characteristics and surface fuel characteristics. The presence of these characteristics indicate the probability that torching and crown fire will occur if the stand were subjected to a wildfire under adverse environmental conditions.

The basic fuels assessment method calculates expected fire behavior for unique combinations of topography and fuels under a given weather condition. The BEHAVE Fire Behavior Prediction System (FBPS)(Andrews 1986) provides estimates of fire behavior under severe fire weather conditions for each of the FBPS fuel models. The potential fire behavior drives the hazard ranking. The final hazard ratings are moderate, high or very high.

Knowledge of fire behavior in a given fuel type is paramount in developing a community defense plan against wildfire. Fires in grass burn rapidly, but can be stopped by a roadway or plowed firebreaks. Fires in brush often burn with an intensity that prevents fire crews from safely applying water to the flame front. Timber fires can ignite new fires (called spot fires) miles ahead of the main blaze, hampering control efforts. Only wide scale pre-fire management programs can reduce the potential of a wildfire catastrophe.

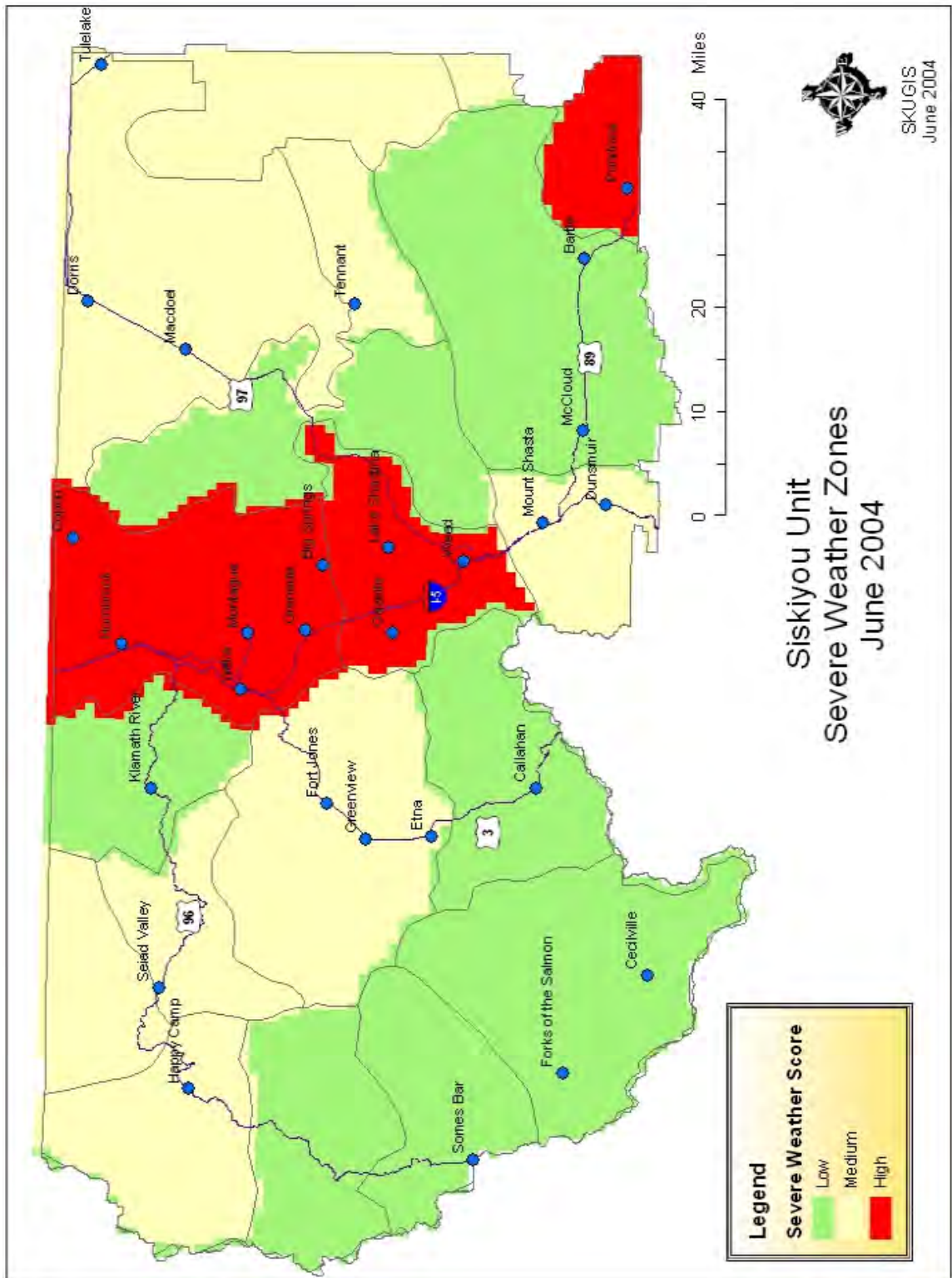
Another issue related to fuels that aren't figured into the Fire Prediction Behavior System, is housing density. The urbanization of California's wildland has resulted in a complex fire environment known as the "Wildland Urban Interface" (WUI). These areas of housing development in the wildland make it difficult for fire protection agencies to protect life and property. While the wildland firefighting community is trained to recognize and apply strategies to these areas, it remains at the forefront of the Siskiyou Fire Management Plan to educate the public to effectively assist in mitigating the risk. The majority of projects in the county are fuel reduction projects based in identified WUI areas, that meet the high-risk, high-value criteria of the California Fire Plan. These projects are detailed in the individual Battalion plans.



C. Severe Weather Assessment

Severe fire weather is defined using the Fire Weather Index (FWI) developed by the USDA Forest Service Riverside Fire Lab. The FWI combines air temperature, relative humidity, and wind speed into a one number score. This score gives wildland fire managers a baseline that helps indicate relative changes in fire behavior due to the weather (fuel and topography conditions are not included in the calculation). Severe fire weather occurs when the FWI exceeds a predetermined threshold. The threshold FWI is derived from average bad fire weather of approximately: 95 degrees F, 20% relative humidity, and a 7 mph eye-level wind speed. Frequency of Severe Fire Weather is defined as the percent of time during the budgeted fire season that the weather station in a given area records severe fire weather. Individual weather stations are ranked as low, medium, or high frequency of severe fire weather. This ranking can then be applied to the area on the ground represented by the weather station. These areas on the ground, called zones, are derived from the 1978 National Fire Danger Rating System zones established to rate fire danger in areas of common weather influence.

The weather assessment is an ongoing process. While the zones have been identified and the historic weather collected, the methodology is still being refined.



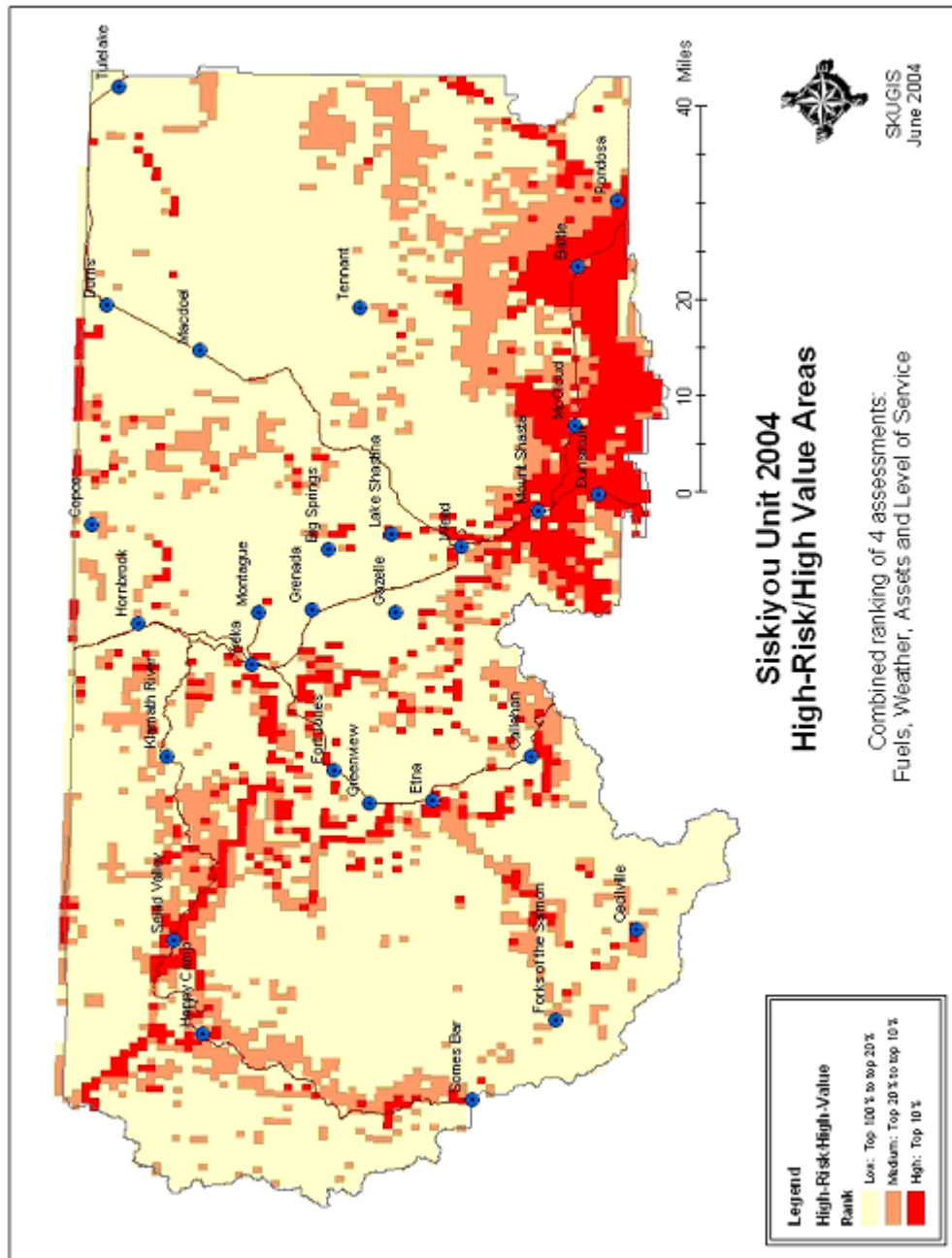
D. High-Risk/High-Value - The Assessments Combined

The ultimate goal of the assessments is to determine the high-risk, high-value areas of the County and apply pre-fire solutions to those areas where large damaging fires might occur. The fire planners have developed a method of weighting the asset values as discussed in the assets at risk section. After the asset values have been determined locally, the validated data for the other three assessments are brought into the formula.

Combining the four assessments: Level of Service, Severe Weather, Hazardous Fuels and Assets at Risk gives fire managers an overall ranking of the Q81st, 450 acre increments. The rankings are: **Very High, High** or **Moderate** and when displayed on a map, allow us to communicate visually with our cooperators, and the public.

Validation of the assessments used in the combined assets formula is an ongoing process. The **Level of Service assessment** is evaluated annually for changes in success rate and workload. The **Fuels assessment** is updated annually for changes in the fuel type, crown and ladder fuels, as brought about by timber harvest plans, fire or disease processes. The **Weather assessment** is monitored annually for changes in weather patterns, and weather station placement is evaluated to accurately capture severe weather days as they relate to fire control.

The following page contains the high-risk, high-value map for Siskiyou Unit.



6. List of Priority areas and Pre-Fire Management Solutions by Battalion*

Battalion	Project Name	Status	Year
Scott Valley	Etna Fuel Break	Maintenance	2000
	Soap Crk Fuel Break	Maintenance	2004
	French Cr Fuel Break	Planning	-----
Shasta Valley	Yreka Project	Active	2002
	Cal-Trans Highway clearance project	Active	2005
Butte Valley	E. Weed Fuel Break	Active	2002
	Lake Shastina FIRESAFE	Maintenance	2005
	Carrick Fuel Break	Maintenance	2001
McCloud	McCloud Fuel Break		
	Phase 1 and 2	Maintenance	2002
	Phase 3 and 4	Active	2005
	McCloud Water Tanks	Active	2004
	McCloud Dry Hydrants	Active	2005

*detailed plans are included in the Battalion Sections

**California Department of Forestry
And
Fire Protection**

Siskiyou Unit



**Battalion 1
Scott Valley
Ignition Management Plan**

2005



CALIFORNIA DEPARTMENT OF FORESTRY
AND FIRE PROTECTION
1809 FAIRLANE ROAD
YREKA, CA. 96097
(530) 842-3516

SCOTT VALLEY BATTALION IGNITION MANAGEMENT PLAN 2005

EXECUTIVE SUMMARY:

The Scott Valley Battalion (Battalion 1) is staffed by Battalion Chief Kelly Blake (Battalion 2611), Fort Jones Station: Fire Captain Gib Anderson, Fire Captain Bill Lloyd, HFEO Jerry Slates, Fire Apparatus Engineer Jason Stone, Fire Apparatus Engineer Greg Roath and 1 fire season LT Fire Apparatus Engineer. The apparatus assigned at the Fort Jones Station are Engine 2665 (type # 5), Engine 2685 (type # 9), reserve Engine 2661 (type # 5), and Transport/Dozer 2642. Duzel Rock Lookout and Quartz Hill Lookout are located in the Battalion. Both lookouts will not be staffed for this fire season due to the State budget crisis- Volunteers in Prevention and paid temporary personnel (FC-42) will staff one or both Lookouts during high fire danger or when severe lightning storms are predicted.

There are approximately 387,000 acres of Direct Protection Area in the Battalion. Most of the State Responsibility Area is located in the hills surrounding the Local Responsibility Area (valley floor) of the Scott Valley. Approximately 56,000 acres of CDF Direct Protection Area are federal lands of the United States Forest Service and the Bureau of Land Management.

The residents are scattered throughout the Battalion providing for a significant urban interface problem. Concentrations of population reside in the Fort Jones, Etna, Greenview and Callahan areas. State Highway 3 runs through the middle of the Battalion with moderate traffic during the day. Vegetation types range from grass to brush fields to timber. Timber makes up about 85% of the Direct Protection Area with the balance of 15% mostly comprised of brush. Most of the vegetation cover needs windy and dry conditions to burn intensely. The weather presents this condition many days during the declared fire season.

A FireSafe council is active in the Lower Scott River area and a newly formed FireSafe Council has begun meeting in the Quartz Valley area.

SCOTT VALLEY BATTALION

FIRE STATISTICS

2004

	Number by Causes	Acres Burned
Undetermined	2	
Lightning Fires	13	
Camp Fires	1	
Smoking	0	
Debris Burning	3	
Arson	0	
Equipment Use	4	
Playing With Fire	0	
Vehicle Fires	0	
Railroad	0	
Power Lines	1	
Miscellaneous	2	

SCOTT VALLEY BATTALION FIRE PREVENTION GOALS 2005

GOAL # 1

To reduce the total fires in the Battalion:

- Advertise fire prevention messages with fire prevention signs along major roadways
- LE-38 Inspections
- Public training through one on one public contact
- News releases
- Train with local Fire Departments and Fire Agencies to achieve common goals.
- Participation in local events
- Encourage and support training activities of the Fort Jones CDF Staff.
- Maintain/improve the excellent working relationship between CDF and Klamath National Forest personnel.

GOAL # 2

Reduce the impact of a large fire in the Battalion:

- LE-38 inspections
- Onsite training to homeowner groups
- Assist with fuel reduction programs
- Obtain funding to perform or contract the work needed for fuel reduction.
- Participate in the PRC 4290 Program.
- Use VIPs to do LE-38s and Schools programs, onsite training
- Maintain/improve existing fuel breaks.
- Work closely with Klamath National Forest personnel to plan for resource needs when initial attack resources become taxed.

GOAL # 3

Impart Fire Prevention Goals and State Regulations to local Government Fire Departments:

- Jointly train and help local government Fire Departments.
- Assist in Prevention, Planning & Protection to local government.
- Assist with media handouts and information material.

FIRE PREVENTION WORK PLAN

SCOTT VALLEY BATTALION

2005

Task	Responsible	Completion	Comments
January/March 1. Fire Prevention Plan 1. FireSafe Council Meetings 2. Review Burn Permit Plan	Battalion Chief All Personnel All Personnel	Done by 2/1 On going On going	Work with Prevention As needed As needed
April/July 1. Prevention Assignments 2. News Release, Permits Required 3. Burn Permit Issuance 4. Assist with School Programs 5. LE-38 Inspections 6. Local Events 7. FireSafe Council Meetings 8. Support FireSafe Projects	All Personnel Battalion Chief/ Prevention Chief All Personnel All Personnel Captains/FAEs All Personnel All Personnel All Personnel	Done by 5/1 Done by 4/30 On going Done by 6/10 On going On going On going On going	Work with Prevention Work with Prevention Writing LE-62 & LE-5 LE-5 Inspections Work with Prevention ID target areas As needed As needed As needed
August/ December 1. FireSafe Council Meetings 2. Powerline Inspections 3. Local Events 4. Assist with Siskiyou County Fair 5. LE-38 Inspections 6. Support FireSafe Projects	All Personnel Battalion Chief/ Captains/FAEs All Personnel All Personnel Captains/FAE's All Personnel	On going On going On going August 2 nd Insp. Done by 8/15 On going	As needed Utilize power line inspection guide As needed Supply Engine As needed

LIST OF STAKEHOLDERS SCOTT VALLEY BATTALION

Residents within the Battalion

Property owners within the Battalion

Timber owners

- Fruit Growers Supply Company

- Timber Products

- U.S. Forest Service, Klamath National Forest

- BLM Siskiyou County

Siskiyou County Fire Departments

- Scott Valley FPD

- Etna FD

- Fort Jones FD

- Happy Camp FD

- Seiad Valley Fire Company

- Klamath River Fire Company

- Salmon River Fire Company

- CDF Fire

- USFS Fire

City of Etna

City of Fort Jones

Town of Greenview

Town of Callahan

Cal-Trans Highway 3

Pacific Power & Light (PacifiCorp)

Siskiyou County Road Department

SCOTT VALLEY BATTALION

Pre-Fire Management Solutions

General description of the agreed on target areas:

Key points of the local fire problem – Extremely large area (387,000 acres), one CDF Fire Station in the Battalion, inaccessible terrain and/or long travel times, high occurrence of lightning activity and lightning caused fires.

General description of the desired future condition:

Continue to improve and maintain existing fuel breaks. Concentrate on the fuel breaks which are located in close proximity to communities and residences. Work towards modifying fuel breaks to completely envelope these areas.

Maintain and reclaim forest roads that access areas prone to high lightning activity. Maintain and repair bridges, culverts, and water crossings.

Maintain water storage tanks originally constructed for fire use. Assess the need for water sources in other areas of the Battalion where water is scarce.

Potential prescriptions:

Soap Creek fuel break – Maintain and improve, keep road accessible to fire equipment.

Etna fuel break – Maintain, possibly extend the fuel break to increase protection south of Etna, and to tie in to a proposed fuel break in the French Creek area.

French Creek fuel break – Consider construction of a fuel break to protect the French Creek area. Assist in finding funding alternatives for the project.

Action plan:

The Soap Creek fuel break has been completed for some time, and is constantly evaluated for maintenance needs. This fuel break may become part of a much larger project that will be funded through the Federal system – essentially lengthening the break to take in a much larger area protecting Federal, State and Local response areas, as well as private lands. CDF will play a large part when and if the project is funded.

The Etna/French Creek fuel break will take a year or two to plan and fund. Actual construction would take three to five years. Crew and equipment availability for the project would be predicated by fire season severity, and project priorities in the Unit.

**California Department of Forestry
And
Fire Protection**

Siskiyou Unit



**Battalion 2
Shasta Valley
Ignition Management Plan**

2005

Ignition Management Plan

Shasta Valley

Battalion 2

Executive Summary

Battalion 2 is located in the heart of Siskiyou County and covers approximately 484,018 acres, 376,598 acres designated State Responsibility Area and 53,420 acres designated Local Responsibility Area. It is home of Yreka, the County Seat, and has the largest population of all the Battalions in the county. There are approximately 46,100 people living in Siskiyou County. Battalion 2 houses the Siskiyou Ranger Unit Headquarters Station and the Hornbrook Forest Fire Station, and is committed to year round fire protection on the Amador Plan. As a public service both stations are open all year for fire permit issuance.

Fuel types range from grassy flats and hills to timbered mountains. There is a major interstate running through the Battalion and there is also a railway with the steepest grade in the United States. This Battalion has a significant urban intermix problem. Because of the significant urban intermix problem, the lack of immediate water sources and the inadequate supply of resources, much of the prevention effort has been focused on reducing the potential for large fire losses. Battalion personnel conducted PRC-4291 inspections in targeted areas of the Battalion.

The Ranger Unit Fire Protection Planner is currently reviewing new construction permits for access, egress and water supplies for fire protection. The Ranger Unit actively enforces a burn ban July 1st, through September 30th of each year to reduce “escape” caused fires.

Although the wildland fire statistics do not display fires on LRA land, LRA has hosted many of the Battalion’s largest fires in the past few years. Many of these LRA fires were found to have the same causes as the SRA fires in the battalion. If the LRA fire statistics were contained within this report it would show some significant fire cause problems.

“Equipment use” caused fires are clearly the biggest human caused problems in the Battalion. They make up 21% of the Battalion’s unwanted wildland fires and will be targeted in the battalion’s prevention goals.

Battalion 2 will be active in local community outreach programs, such as food / toy drives, school programs, Fire Prevention Week programs and public safety messages.

The Battalion will be adding several new fire prevention signs and replacing some of the older signs. The Volunteer In Prevention (VIP) staff will be utilized to achieve many of the Battalion's goals.

Shasta Valley Battalion 2 Fire Statistics 2004

Exhibit #1 Displays an accounting of all fires, by cause, within the Battalion. This past year the leading cause of unwanted fire is Lightning.

Exhibit #1
Year 2004 SRA Fires by Cause

Lightning	44
Equipment Use	14
Vehicle	12
Miscellaneous	23
Debris Burning	3
Playing With Fire	2
Arson	2
Camp Fire	0
Undetermined	5
Railroad	0
Power Line	2

Fire Prevention Goals

Shasta Valley

Battalion 2

Goal # 1

To reduce the equipment use fires.

1. Educate the Public.
 - a. Initiate programs to educate the public on the dangers of using equipment in dry fuels During hot dry periods.
 - b. Use media, Prevention signs, develop handouts to get the information out to the public
 - c. Spark arrestor compliance.

Goal # 2

Reduce the Impact of Large, damaging, Fires.

1. Education.
 - a. Educate Public on proper clearance around structures. PRC-4291
 - b. Educate Public on steps they can take to reduce fire hazards around the home.
 - c. Education steps can be taken during LE-38 inspections or during permit issuance.
 - d. Educate Public on proper and legal burning techniques.
2. Enforcement
 - a. Enforce PRC-4291 requirements
 - b. Enforce use of spark arrestors.
 - c. Enforce burning requirements.

Goal # 3

Become more involved in the communities we serve.

1. Attend community meetings.
2. Help establish “Fire Safe” councils.
3. Work closely with schools.

- a. Fire prevention programs.
 - b. Engine company visits to schools or school field trips to stations.
 - c. Coordinate with local volunteer departments and provide fire safety training for schools, such as “Stop Drop and Roll”.
 - d. Encourage schools to maintain the fire prevention signs in their areas.
4. Develop a brochure that can be handed out or mailed, which would include an overview of CDF and local ranger unit information and contact numbers.

Fire Prevention Sign Project

Existing Prevention Sign Locations.

1. Copco Road Near Railroad tracks.
2. Ager-Beswick Road at Omega Road.
3. Ager Road at Yreka Ager Road.
4. Highway A-12 at Mt. Shasta Vista. (This sign is to be eliminated.)
5. Old Hwy. 99 South of Yreka near South Yreka F.D. (Also visible from Interstate 5)
5. Hwy. A-12 East of Grenada.

New Prevention Sign Locations

1. East Highway 3 near the Shasta Valley Golf Course.
2. Highway 263 North of Yreka.

All existing sign holders will be replaced and new holders built for Battalion 2 prevention signs. Battalion Personnel will build the sign holders. The local Volunteer in Prevention Staff will design the new signs. All signs will be double sided. In the future we hope to involve the local schools and volunteer departments with development of new signs, maintenance and upkeep.

In addition we will be constructing “trailer signs” to hang from the main prevention signs. These signs will read “Burn Permits Required” and “Burn Permits Suspended”. They will be made from reflective material and be double sided. McCloud FFS will assist in the construction of these trailer signs. The signs will be posted and removed as local regulations warrant. Some of these trailer signs have been completed.

**California Department of Forestry
And
Fire Protection**

Siskiyou Unit



**Battalion 3
Butte Valley
Ignition Management Plan**

2005



CALIFORNIA DEPARTMENT OF FORESTRY
AND FIRE PROTECTION
1809 FAIRLANE ROAD
YREKA, CA. 96097
(530) 842-3516

BUTTE VALLEY BATTALION IGNITION MANAGEMENT PLAN 2005

EXECUTIVE SUMMARY:

The Butte Valley Battalion (Battalion 3) is staffed by Battalion Chief Jeff Burns (Battalion 2613), Weed Station: Fire Captain Alex Lujan, Fire Captain Dave Stearns, Fire Apparatus Engineer Flint Thomas, Fire Apparatus Engineer Jim Derra, one fire season Fire Apparatus Engineer, and eight fire season Fire Fighters. The fire engines at the Weed Station are Engine 2663 (Model # 5) and Engine 2683 (Model # 9). Macdoel Station: Fire Captain John Berggreen, Fire Captain Dave Stroing, and one fire season Fire Captain and four fire season Fire Fighters. The fire engine at the Macdoel station is Engine 2660 (Model #5).

There are approximately 364,000 acres of Direct Protection Area in the Battalion. The fuel types range from timber to desert sage. Most areas are arid with minimal surface water available for fire fighting. There are many areas with poor access due to volcanic geographic outcroppings. Most of the vegetation cover needs windy and dry conditions to burn intensely. The weather presents this condition many days during the declared fire season.

Most of the residents are in the cities of Weed, Dorris, Tulelake, and the communities of Macdoel, Gazelle, Lake Shastina, Hammond Ranch, and the Carrick subdivision Northeast of Weed. Interstate 5 and State Highway 97 run through the Battalion with heavy traffic during most times of the day. The Union Pacific (UP) Railroad has tracks through the Weed area and through the Butte Valley. The Central Oregon and Pacific (CORP) Railroad has tracks from Weed heading North through the Shasta Valley. There are several sets of major electrical transmission lines that run North and South through the Battalion.

The Lake Shastina Area has and will continue to be the highest priority in the Battalion for Fire Safe Projects. The main problems for the Lake Shastina Area are small lots, five-foot setbacks for homes, and many uncleared undeveloped lots adjacent to homes. The area is surrounded by vast brush fields and experiences high winds many days of the year.

EXECUTIVE SUMMARY cont'd

There is an active Fire Safe Council in the Lake Shastina Area. The Fire Safe Council has been instrumental in fuel modification projects along community road right-of-ways and community common areas with the assistance of a Wildland Urban Interface (WUI) grant. The Fire Safe Council has also helped with the development of a community evacuation plan.

The Greater Weed Area Fire Safe Council has participants from Weed, Hammond Ranch, and the surrounding area. The Greater Weed Fire Safe Council secured Wildland Urban Interface (WUI) grants that developed a fuel break along the whole East side of Weed. The fuel break follows the PacificCorp

electrical transmission lines from Highway 97 South through the Carrick subdivision, and then ends just short of the Union Pacific Train Tracks Southeast of Weed.

**BUTTE VALLEY BATTALION
FIRE CAUSES
2004**

	Number by Causes	Acres Burned
Undetermined	6	
Lightning Fires	7	
Camp Fires	1	
Smoking	2	
Debris Burning	8	
Arson	0	
Equipment Use	7	
Playing With Fire	0	
Vehicle Fires	5	
Railroad	0	
Power Lines	1	
Miscellaneous	2	

BUTTE VALLEY BATTALION

FIRE PREVENTION GOALS

2005

GOAL # 1

To reduce the total fires in the Battalion:

- a. Advertise fire prevention messages with fire prevention signs along major roadways
- b. LE-38 Inspections
- c. Educate Children utilizing Schools programs
- d. Public education through public contact
- e. Participation in local events
- f. News releases

GOAL # 2

Reduce the impact of a large fire in the Battalion:

- a. LE-38 inspections
- b. FireSafe training to home-owner groups and other community groups
- c. Assist with fuel reduction programs and fuel break projects
- d. Obtain funding to perform or contract the work done for fuels projects
- e. Support the PRC 4290 Program
- f. Support FireSafe Councils

GOAL # 3

Instill Fire Prevention Goals and State Regulations to local Government Fire Departments.

- a. Jointly train and help local government Fire Departments.
- b. Assist in Prevention, Planning & Protection to local Government.
- c. Assist with media handouts and information material.

FIRE PREVENTION WORK PLAN

BUTTE VALLEY BATTALION

2005

Task	Responsible	Completion	Comments
January/March 1. Fire Prevention Plan 2. FireSafe Council Meetings 3. Review Burn Permit Plan	Battalion Chief All Personnel All Personnel	Done by 2/1 On going On going	Work with Prevention As needed As needed
April/July 1. Prevention Assignments 2. News Release, Permits Required 3. Burn Permit Issuance 4. Assist with School Programs 5. LE-38 Inspections 6. Local Events 7. FireSafe Council Meetings 8. Support FireSafe Projects	All Personnel Battalion Chief/ Prevention Chief All Personnel All Personnel Captains/FAEs All Personnel All Personnel All Personnel	Done by 5/1 Done by 4/30 5/1 to 6/30 Done by 6/10 1 st Insp. done by 7/15 On going On going On going	Work with Prevention Work with Prevention Writing LE-62 & LE-5 LE-5 Inspections Work with Prevention 25 per Captain/FAE As needed As needed As needed
August/December 1. FireSafe Council Meetings 2. Power Line Inspections 3. Local Events 4. Assist with Siskiyou County Fair 5. Le-38 Inspections 6. Support FireSafe Projects	All Personnel Battalion Chief/ Captains/FAEs All Personnel All Personnel Captains/FAE's All Personnel	On going Done by 9/1 On going August 2 nd Insp. Done by 8/15 On going	As needed Utilize power line inspection guide As needed Supply Engine As needed

LIST OF STAKEHOLDERS BUTTE VALLEY BATTALION

- Residents within the Battalion
- Property owners within the Battalion
- Timber owners
 - Roseburg Forest Products
 - Sierra Pacific Industry
 - Hearst Corporation
 - Hancock/Olympic Forests
 - Timber Products
 - U.S. Forest Service, Klamath National Forest
 - U.S. Forest Service, Shasta-Trinity National Forest
 - BLM
 - Siskiyou County
- Siskiyou County Fire Departments

<ul style="list-style-type: none"> ○ Weed FD ○ Lake Shastina FD ○ Gazelle FD ○ Butte Valley FD ○ Dorris FD ○ Hammond Ranch FD 	<ul style="list-style-type: none"> ○ Mount Shasta Vista Fire Company ○ Pleasant Valley Fire Company ○ Tulelake FD ○ Tennant CSD ○ USFS Fire (KNF and SHF) ○ CDF Fire
---	--
- City of Weed
- City of Dorris
- City of Tulelake
- Town of Gazelle
- Town of Macdoel
- Town of Tennant
- Town of Edgewood
- Cal-Trans: Highway 97 and Interstate 5
- Pacific Power & Light (PacifiCorp)
- Siskiyou County Road Department
- Union Pacific Railroad (UP)
- Central Oregon and Pacific Railroad (CORP)
- Lake Shastina CSD / Rancho Hills Subdivision
- Pleasant Valley Subdivision
- Mount Shasta Vista Subdivision
- Carrick Addition Subdivision
- Boyd Farms
- Shasta Valley Farms
- Lassen Canyon Nursery
- Red Rock Ranch
- Sierra Pacific Ranches
- Rocky Mountain Elk Foundation

BUTTE VALLEY BATTALION PRE-FIRE MANAGEMENT SOLUTIONS 2005

General description of the agreed on target areas:

Key points of the local fire problem – Extremely large area (364,000 acres), only two CDF Fire Stations in the Battalion, inaccessible terrain and/or long travel times. There is a high occurrence of lightning activity and lightning caused fires.

General description of the future condition:

Continue to improve and maintain existing fuel breaks and fuels modification projects. Concentrate on fuel breaks and fuels modification projects that are located in close proximity to communities and residences. Work toward expanding fuel breaks and fuels modification projects to completely envelop high-risk areas.

Maintain and reclaim forest roads that access areas prone to lightning activity.

Maintain water storage tanks originally constructed for fire use. Assess the need for water sources in the Battalion where water is scarce.

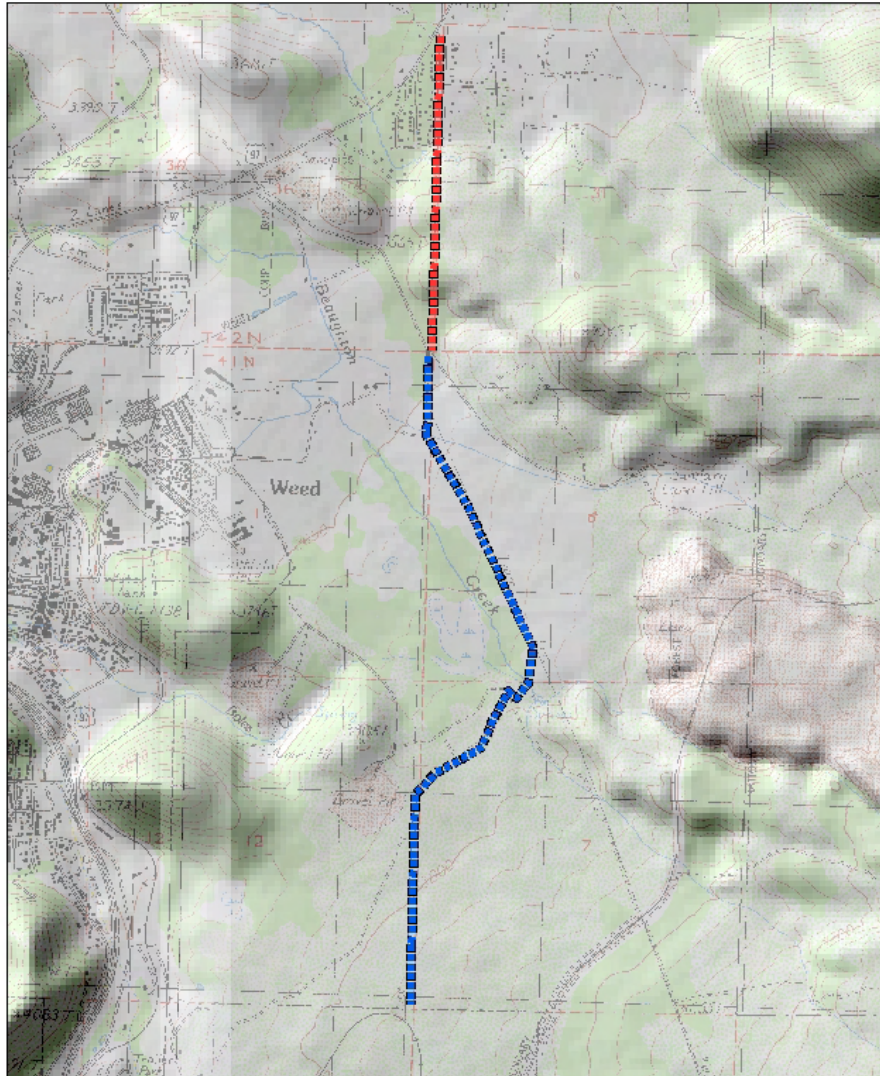
Priorities:

1. Lake Shastina Subdivision
2. The Greater Weed Area

Action Plan:

Continue fuel breaks and fuels modification projects around and in the Lake Shastina subdivision. Continue the Greater Weed Fuel Break to eventually encompass Weed City, the area west of Weed City and the Hammond Ranch Subdivision. These will be accomplished by working with local FireSafe Councils and private landowners, and hopefully be grant funded. CDF may play a key role in doing these fuel breaks and fuels modification projects by supplying equipment and personnel, if available.

East Weed Fuel Break



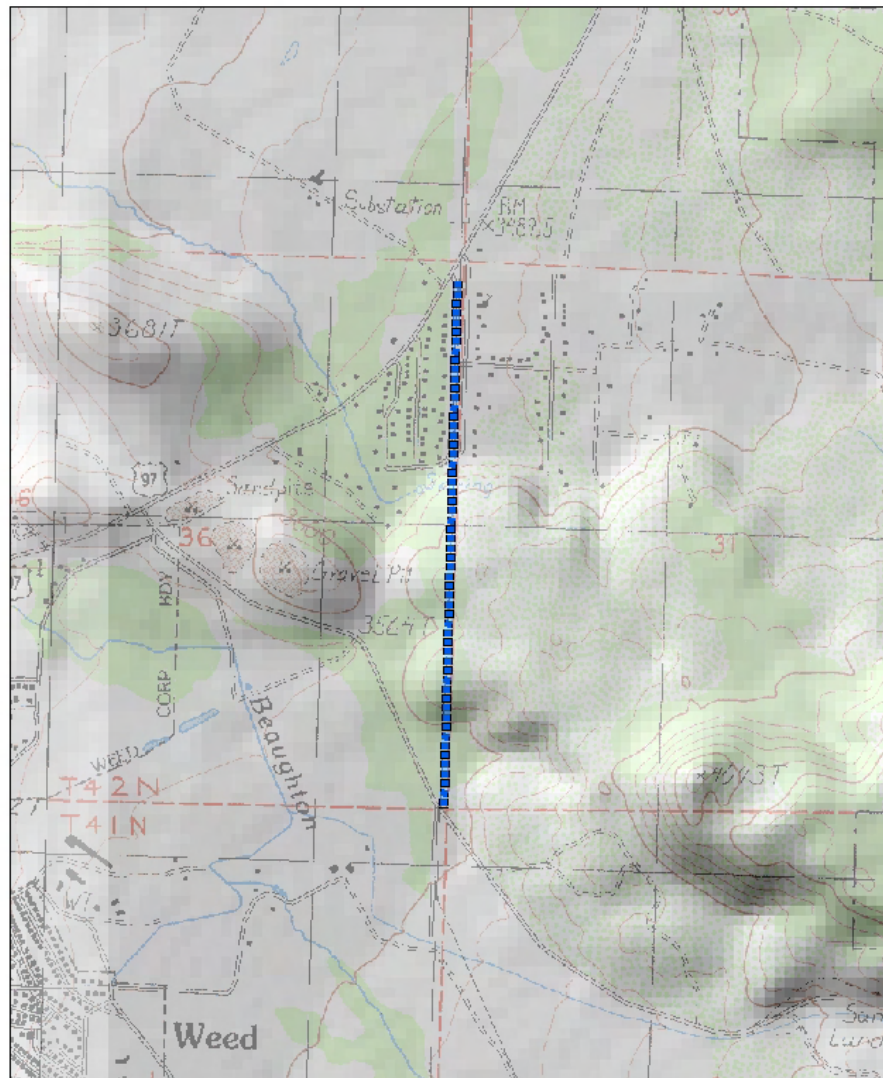
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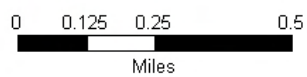
Legend

- E. Weed Fuel Break
- Carrick Fuel Break

Carrick Fuel Break



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KBlumer
05/22/03



Legend

■ ■ ■ ■ Fuel Break

**California Department of Forestry
And
Fire Protection

Siskiyou Unit**



**Battalion 4
McCloud
Ignition Management Plan

2005**



CALIFORNIA DEPARTMENT OF FORESTRY
AND FIRE PROTECTION
1809 FAIRLANE ROAD
YREKA, CA 96097
(530) 842-3516

MCCLOUD BATTALION IGNITION MANAGEMENT PLAN 2005

EXECUTIVE SUMMARY:

The McCloud battalion (Battalion 4) is staffed by:

Battalion Chief Margy Marshall
Fire Captain Phil Anzo
Fire Captain Terry Hubbard
Fire Captain Matt Shannon
Fire Apparatus Engineer Roman Attebury
Fire Apparatus Engineer Darren Dow
Fire Apparatus Engineer Steve Richardson

Three Limited Term FAE's
Sixteen Firefighters

Battalion 4 is located in southern Siskiyou County and parts of northern Shasta County. The Battalion has both private and federal lands, almost entirely timbered. The Fire Hazard Ranking for Battalion 4 is High and Very High.

Most of the urban intermix problems are located in State Responsibility Areas around the communities of McCloud, Mt. Shasta and Dunsmuir. This is where most of the fire prevention efforts take place.

Fire Prevention efforts of the Battalion:

- Active participation in McCloud Fire Safe Council fuel break projects.
- McCloud Station assists homeowners by building address signs at no cost.
- McCloud Station designs and paints fire prevention signs for the Siskiyou Unit.
- Patrol of the area around Lake Siskiyou during the Fourth of July fireworks display.
- Participation in the Mt. Shasta Fourth of July parade.
- Fire prevention and Smokey Bear program at Burney Falls State Park.
- Fire prevention and equipment displays at the McCloud Forest Festival.
- Fire Safe Christmas display in downtown McCloud emphasizing home numbering (How can Santa find your house?)

EXECUTIVE SUMMARY Cont'd:

- Fire prevention information provided to Mt. Shasta Estates Homeowner's Association Quarterly Newsletter.
- Fire Safe display at Mt. Shasta Estates Homeowners Annual Barbeque (joint effort with USFS Shasta Trinity NF).
- Any request by the public or an organization for a fire prevention presentation.

EMERGENCY INCIDENTS BATTALION 4 (SRA)
2004

FIRE CAUSES
2004

	Number by Causes	Acres Burned
Undetermined	4	1.0
Lightning Fires	7	1.9
Camp Fires	6	0.1
Smoking	0	0.0
Debris Burning	2	0.0
Arson	1	0.0
Equipment Use	6	1.5
Playing with Fire	2	0.0
Vehicle Fires	2	0.2
Railroad	0	0.0
Power Lines	0	0.0
Miscellaneous	1	0.0

McCLOUD BATTALION-2005

FIRE PREVENTION GOALS

GOAL #1

Prevent loss of life and property within the Battalion by providing homeowners and stakeholders with fire safety information and education.

- Actively seek opportunities to provide fire safety information to the public.
- Continue participation in programs that are already established.
- Participate with the USFS in spring PRC 4290 inspections.

GOAL #2

Prevent human caused fires by providing homeowners and stakeholders with information about safe burning practices and burn regulations.

- All employees are well versed in current burn regulations.
- The goal of burn permit interactions is to provide education to the public about safe burning practices.
- By agreement, CDF and the USFS will both write dooryard burn permits in the Mt. Shasta Forest Estates subdivision. Permit information will be shared WEEKLY between the two agencies.

GOAL #3

Prevent and reduce the spread of all fires in the Battalion by actively participating in Fire Safe Council Fuel break projects.

- Ensure that CDF is represented at every local FSC meeting.
- Volunteer our expertise and assistance when ever possible.

McCLOUD BATTALION-2005

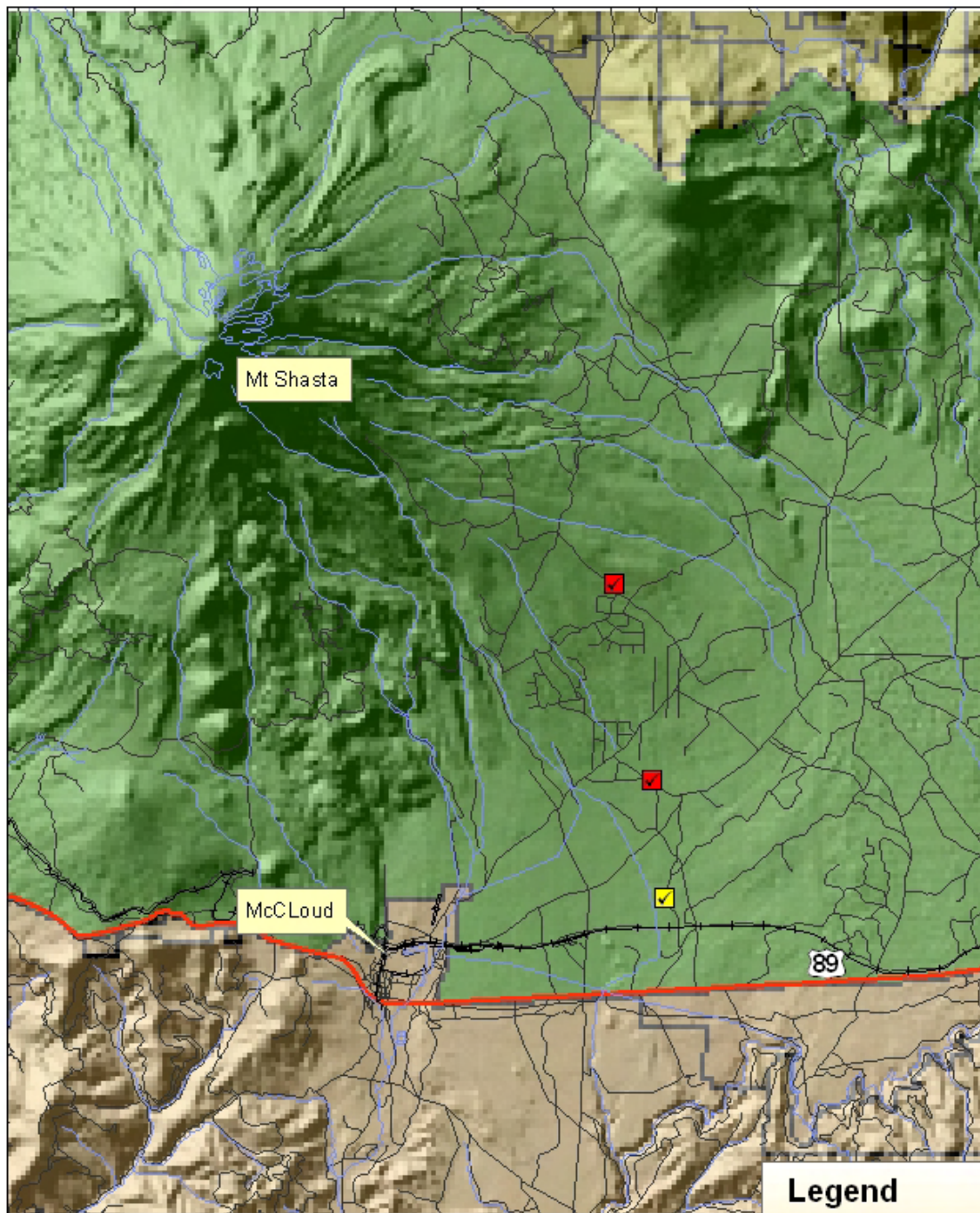
LIST OF STAKEHOLDERS

- Residents within the Battalion
- Property owners within the Battalion
- Timber owners
 - Roseburg Forest Products
 - Forest Systems, Inc.
 - Hearst Corporation
 - Hancock/Olympic Forests
 - U.S. Forest Service, Shasta-Trinity national Forest
 - BLM
 - Siskiyou County
- Siskiyou County Fire Departments
 - McCloud CSD
 - Mt. Shasta City FD
 - Mount Shasta Fire Protection District
 - Dunsmuir CFD
 - CDF Fire
 - USFS Fire
- City of Dunsmuir
- City of Mt. Shasta
- Town of McCloud
- Willow Creek Ranch
- County Service Area #4

McCLOUD BATTALION-2005

PRE-FIRE MANAGEMENT SOLUTIONS

- **McCloud Fuel Break:** In 2002 and 2003 CDF participated with the McCloud Fire Safe Council in Phases I and II of the McCloud Fuel Break. Phase I provides a fuel break on the northwest side of McCloud. Phase II creates a fuel break on the northeast side of McCloud. Phase I and II are completed projects. Grant proposals have been submitted for funding of Phases III and IV of the Fuel Break. Phase III creates a shaded fuel break along Squaw Valley Road from the CDF Station south to Warmcastle, and east from the CDF Station along Cemetery Road to the gravel pit. Phase IV will create a fuel break that will protect the community from fires southeast of McCloud. In both Phase III and IV, CDF engine personnel will assist in fuel break construction by burning piles after fire season and before snowfall. Phase V of the fuel break will be located in the Mt. Shasta Forest Estates, and is in the planning stage.
- **McCloud Fire Safe Council:** CDF is an active participant on the McCloud Fire Safe Council.
- **Water tanks for fire suppression:** With funding from the McCloud Zone of Increased Benefit (ZIB) two 14,000-gallon water tanks have been constructed in the Mt. Shasta Forest Estates. In spring 2005 a 10,000-gallon cement, above ground tank will be constructed near the intersection of Esperanza Road and the railroad tracks. This tank will provide fire suppression water near the Wilderness Estates development and will be funded by the ZIB. Planning is ongoing to build dry hydrants in the Squaw Valley Road area.

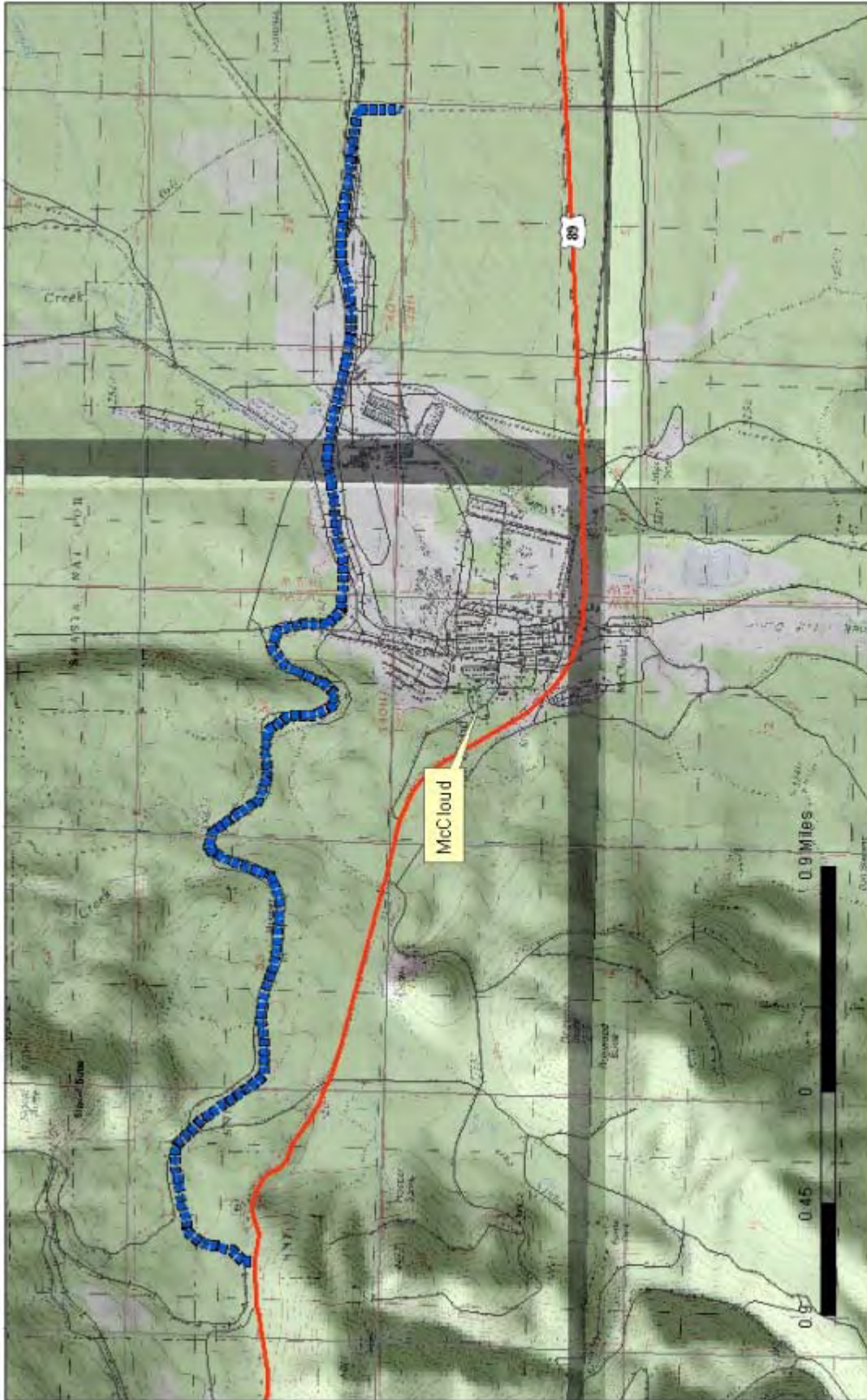


Legend

- State Hwy
- + + Railroad
- 14,000 gal underground tank
- 10,000 proposed above ground tank


 SKUGIS
 KBlumer
 4/2003

McCloud Battalion Water Tank Project



SKUGIS
6/2/05
146

Battalion 4 - McCloud Fuel Break Phase 1 and 2 : Maintenance 2005

Legend

 Fuel Break

APPENDIX

Fuel Models For Estimating Fire Behavior

(Anderson, Hal E. 1982 General Technical Report INT-122, USDA, Ogden Intermountain Range and Experimentation Station)

Fuel Model 1: This model is used for short (generally below knee level or about 1-foot tall) fine-textured pure grass which best represents typical grasslands and savannas. Less than one-third of the area has other vegetation like shrubs or trees. Fuel loading in fuel model 1 range from $\frac{1}{2}$ to $\frac{3}{4}$ of a ton per acre. Fires in fuel model 1 burn rapidly with flame lengths averaging 4 feet.

Fuel Model 2: Like fuel model 1, fuel model 2 is dominated by grass about 1 to 2-feet tall, usually under an open wooded or timber over-story. The larger particle size in these shrubs and the litter from the tree over-story increases intensity, but reduces fire spread. Four to five tons of fuel is found per acre and the fuel bed depth is 1-2 feet.

Fuel Model 4: This is a brush model and is characterized by stands of mature brush 6 feet or more in height with continuous, inter-linking crowns, and ranging from 15 to 80 tons per acre. Fires in this fuel model burn intensely (50+ foot flame lengths) and spread relatively quickly.

Fuel Model 5: Fuel model 5 is composed of the same mixes of vegetation as Fuel Model 4, but individual plants are shorter, usually sparser, and less mature with little or no dead component. This model occurs on poor sites, on recent burns and may occur under tree over-stories. Fires in this fuel type do not burn as intense (6-13 foot flame lengths), or as rapidly due to higher concentrations of live to dead fuel.

Fuel Model 6: This fuel model consists of vegetation that is taller and more flammable than that of fuel model 5, but not as tall or as dense as fuel model 4. Fires in this model will burn in the foliage of standing vegetation, but only when wind speeds are greater than 8 mph. Fires burn with an average flame length of 6 feet and spread at a rate of 2,112 feet/hour. Interior live oak, young chamise and manzanita are all associated with this fuel model. In many instances a fuel model 5 will evolve into a fuel model 6 by the latter part of summer.

Fuel Model 8: This model reflects slow burning, low intensity fires burning in the leaf or needle litter under a conifer or hardwood canopy. Fuel model 8 contains few fine fuels (about 1-2 tons per acre) consisting of compacted leaf and short needle conifer litter and is absent an under story shrub layer. These fires do not pose a threat unless low fuel moisture or high winds allow the fire to spread into the canopy. This model is found locally in areas treated for fuel reduction. It represents the ideal model; where fire behavior is characterized by low-intensity, slow burning ground fire.

Fuel Model 9: Much like fuel model 8 this model has little or no shrub layer but has more fine fuels (about 2-4 tons per acre), which is deeper, and “fluffier” like oak leaves and long conifer needles. Fires in this model also burn with more intensely and higher rates of spread especially under windy conditions. This model is found in a wide range of areas under timber stands which have been treated for fuel reduction, or have seen low intensity fires over the last decade.. Surface fire flame lengths, without the affects of wind or slope, range from 3 to 7 feet.

Fuel Model 10: Fuel model 10 almost always has a shrub or immature tree under story with loadings of fine fuels of about 3 to 4 tons per acre and heavy loadings of 12+ tons per acre. Fires in this timber model burn with greater intensity (6-10 foot flame lengths) with moderate rates of spread. Torching of individual trees is common and can cause embers to start new “spot” fires ahead of the main fire. Crown fires are also a threat in this fuel type. In dry conditions, or with high winds, fires in fuel model 10 can be very difficult to control. This model is characterized by stands of overstocked, unmanaged natural conifer stands.